AMENDMENTS TO THE SPECIFICATION

Insert the accompanying 18 sheets of drawings (Figures 8A-8Q).

At pages 2-3, amend paragraph 0008 as follows:

[0008] Thus, in one embodiment, this invention provides methods of patterning redox-active polymers on a surface to form surface-bound redox-active polymers. The method typically involves providing redox-active molecules bearing at least a first reactive site or group and a second reactive site or group; and contacting the surface with the redox-active molecules where the contacting is under conditions that result in attachment of the redox-active molecules to the surface via the first reactive site or group and attachment of redox-active molecules via the second reactive site or group, to each other thereby forming polymers attached to the surface where the polymers comprise at least two, preferably at least three or four, more preferably at least five or six, and most preferably at least eight, ten, or twelve, of the redox-active molecules. The first reactive site or group and the second reactive site or group can be the same species or they can be different species. In certain embodiments, the first reactive site or group and/or the second reactive site or group is an ethynyl group (*e.g.,* ethynyl, 4-ethynylphenyl, 3-ethynylphenyl, 4-ethynylbiphenyl, 3-ethynylphenyl, 4-ethynylterphenyl, and 3-ethynylterphenyl, and the like). Suitable redox-active molecules include, but are not limited to a porphyrinic macrocycle, a porphyrin, a sandwich coordination compound of porphyrinic macrocycles, and a metallocene. In certain embodiments, the redox-active molecule is selected from the group consisting of a linear polyene, a cyclic polyene, a heteroatom-substituted linear polyene, a heteroatom-substituted cyclic polyene, a tetrathiafulvalene, a tetraselenafulvalene, a metal coordination complex, a buckyball, a triarylamine, a 1,4-phenylenediamine, a xanthene, a flavin, a phenazine, a phenothiazine, an acridine, a quinoline, a 2,2'-bipyridyl, a 4,4'-bipyridyl, a tetrathiotetracene, and a peri-bridged naphthalene dichalcogenide. In certain embodiments, the redox-active molecule is a porphyrin comprising a substituent selected from the group consisting of: aryl, phenyl, cycloalkyl, alkyl, halogen, alkoxy, alkylthio, perfluoroalkyl, perfluoroaryl, pyridyl, cyano, thiocyanato, nitro, amino, alkylamino, acyl, sulfoxyl, sulfonyl, amido, and carbamoyl, more preferably a substituent selected from the group consisting of: 4-methylphenyl, 4-*t*-butylphenyl, 4-trifluoromethylphenyl, pentyl, and H (no substituent). In certain embodiments, the redox-active molecule is a phthalocyanine comprising a substituent selected from the group consisting of aryl, phenyl, cycloalkyl, alkyl, halogen, alkoxy,

alkylthio, perfluoroalkyl, perfluoroaryl, pyridyl, cyano, thiocyanato, nitro, amino, alkylamino, acyl, sulfoxyl, sulfonyl, amido, and carbamoyl, more preferably a substituent selected from the group consisting of methyl, *t*-butyl, butoxy, fluoro, and H (no substituent). In certain embodiments, the redox-active molecule is a molecule found in ~~Table 1 or~~ Figure 4 or Figures 8A-8Q.

At pages 5-6, amend paragraph 0010 as follows:

[0010] In another embodiment, this invention provides a method of patterning redox-active polymers on a surface to form surface-bound redox-active polymers. The method typically involves providing a surface having attached thereto a linker bearing a reactive site or group and/or a redox-active molecule bearing a reactive site or group; providing redox-active molecules bearing at least a first reactive site or group and a second reactive site or group; and contacting the surface with the redox-active molecules where the contacting is under conditions that result in the attachment of the redox-active molecules to the linker and/or to the redox-active molecule attached to the surface and the polymerization of the redox-active molecules thereby forming polymers attached to the surface where the polymers comprise at least two, preferably at least three or four, more preferably at least five or six, and most preferably at least eight, ten, or twelve, of the redox-active molecules. The first reactive site or group and the second reactive site or group can be the same species or they can be different species. In certain embodiments, the first reactive site or group and/or the second reactive site or group is an ethynyl group (*e.g.*, ethynyl, 4-ethynylphenyl, 3-ethynylphenyl, 4-ethynylbiphenyl, 3-ethynylphenyl, 4-ethynylterphenyl, and 3-ethynylterphenyl, and the like). Suitable redox-active molecules, include, but are not limited to the redox-active molecules described above and listed in ~~Table 1 and/or~~ Figure 4 and/or Figures 8A-8Q. In certain embodiments, the providing comprises providing a surface having attached thereto a linker whereby the surface and linker have the formula S-Z^1-L^1-Y^1, where S is the surface; Z^1 is a surface attachment group; L^1 is a covalent bond or a linker; and Y^1 is a protected or unprotected reactive site or group. In certain embodiments, Y^1 is a protected reactive site our group and the method further comprises deprotecting Y^1. In various embodiments Z^1, before coupling to the surface and/or Z^1-L^1, and/or L^1 include, but are not limited to the Z^1 and/or the Z^1-L^1, and/or the L^1 described above. In certain embodiments, the method further comprises attaching a counterelectrode to the polymer(s) (*e.g.*, directly or through a linker). In certain embodiments, the redox-active molecules can further comprise redox-active molecules having only one available reactive group or

site which can therefore act as a capping reagent. The redox-active molecules having only one available reactive group or site can have just a single available reactive group or site and/or they can have a second reactive group or site that is blocked. In certain embodiments, the surface comprises a material selected from the group of surface materials identified above. The surface can comprise a hydrogen passivated surface.

At pages 6-7, amend paragraph 0011 as follows:

[0011] In another embodiment, this invention provides an electroactive substrate comprising a first zone wherein the first zone comprises a surface with an attached redox-active moiety according to the formula: M_n-L-Z-S, where S is a substrate; Z is a surface attachment group; L is a linker or covalent bond; M is a redox-active molecule; and n is at least 3, preferably at least 4, 5, or 6, more preferably 7, 8, or 9, and most preferably at least 10, 12, 15, 20, or 30. In certain embodiments, the redox-active molecules are attached to each other through an ethynyl group (*e.g.,* ethynyl, 4-ethynylphenyl, 3-ethynylphenyl, 4-ethynylbiphenyl, 3-ethynylphenyl, 4-ethynylterphenyl, 3-ethynylterphenyl, *etc.*). Suitable redox-active molecules, include, but are not limited to the redox-active molecules described above and listed in ~~Table 1 and/or~~ Figure 4 <u>and/or Figures 8A-8Q</u>. In certain embodiments, the substrate comprises a surface with an attached redox-active moiety according to the formula: S-Z-L-M_n-Y-E, where Y is a linker or a reactive site or group; and E is a counterelectrode. In various embodiments Z, Z-L, and L include, but are not limited to the moieties identified above for Z^1, Z^1-L^1, and/or L^1. In certain embodiments, the electroactive substrate further comprises a second zone wherein the second zone comprises a surface with an attached redox-active moiety wherein the redox-active moiety is different than M. In certain embodiments, the first zone is a redox-active storage cell.

At page 7, amend paragraph 0012 as follows:

[0012] This invention also provides a redox-active storage cell comprising a surface with an attached redox-active moiety according to the formula: E-Y-M_n-L-Z-S where S is a substrate; Z is a surface attachment group; L is a linker linkers or covalent bond; M is a redox-active molecule; Y is a reactive site or group or a linker; E is a counter-electrode; and n is at least three or four, more preferably at least five or six, and most preferably at least eight, ten, or twelve. In certain embodiments, the redox-active molecules are attached to each other through an ethynyl group (*e.g.,*

ethynyl, 4-ethynylphenyl, 3-ethynylphenyl, 4-ethynylbiphenyl, 3-ethynylphenyl, 4-ethynylterphenyl, 3-ethynylterphenyl, *etc.*). Suitable redox-active molecules, include, but are not limited to the redox-active molecules described above and listed in ~~Table 1 and/or~~ Figure 4 and/or Figures 8A-8Q. In various embodiments Z, Z-L, and L include, but are not limited to the moieties identified above for Z^1, Z^1-L^1, and/or L^1. In certain embodiments, a conductive material and/or a semiconductive material. The storage cell can, optionally be encapsulated.

At page 15, line 26, (after paragraph 0063) insert the following:

Figures 8A-8Q show formulas, cyclic voltammetry, and coverage summary of illustrative redox-active molecules containing ethynyl groups.

At page 25, amend paragraph 0101 as follows:

[0101] Certain particularly preferred redox-active molecules derivatized with ethyne reactive groups are illustrated in ~~Table 1 and~~ Figure 4 and Figures 8A-8Q.

At page 36, delete paragraph 0137.

At pages 36-38, delete Table 1.